

WHAT WE CLAIM IS:

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1. ~~A nucleic acid comprising a nucleotide sequence encoding a mammalian excitatory amino acid transporter selected from the group consisting of the glutamate transporter EAAT1, EAAT2 and EAAT3.~~

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2. ~~A nucleic acid according to Claim 1 wherein the nucleotide sequence of the nucleic acid consists essentially of the sequence of the human excitatory amino acid transporter EAAT1 (SEQ ID No.:4).~~

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3. ~~A nucleic acid according to Claim 1 wherein the nucleotide sequence of the nucleic acid consists essentially of the sequence of the human excitatory amino acid transporter EAAT2 (SEQ ID No.:6).~~

4. A nucleic acid according to Claim 1 wherein the nucleotide sequence of the nucleic acid consists essentially of the sequence of the human excitatory amino acid transporter EAAT3 (SEQ ID No.:8).

5. A homogeneous composition of mammalian excitatory amino acid transporter or derivative thereof having a molecular weight of about 59.5 kilodaltons and an amino acid sequence consisting essentially of the amino acid sequence of the human excitatory amino acid transporter EAAT1 (SEQ ID No.:5).

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6. ~~A homogeneous composition of a mammalian excitatory amino acid transporter or derivative thereof having a molecular weight of about 62.1 kilodaltons and an amino acid sequence consisting essentially of the amino acid sequence of the human excitatory amino acid transporter EAAT2 (SEQ ID No.:7).~~

7. A homogeneous composition of a mammalian excitatory amino acid transporter or derivative thereof having a molecular weight of about 57.2 kilodaltons and an amino acid sequence consisting essentially of the amino acid sequence of the human excitatory amino acid transporter EAAT3 (SEQ ID No.:9).

8. A nucleic acid hybridization probe for the detection of mammalian excitatory amino acid transporter expression comprising the nucleotide sequence of Claim 3.

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9. A nucleic acid hybridization probe for the detection of mammalian excitatory amino acid transporter expression comprising the nucleotide sequence of Claim 4.

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10. A nucleic acid hybridization probe for the detection of mammalian excitatory amino acid transporter expression comprising the nucleotide sequence of Claim 5.

11. A recombinant expression construct comprising a nucleic acid having a nucleotide sequence encoding a mammalian excitatory amino acid transporter, wherein the nucleotide sequence consists essentially of the sequence of the human EAAT1 excitatory amino acid transporter (SEQ ID No.:4), and wherein the construct is capable of expressing the EAAT1 excitatory amino acid transporter in a transformed culture of eukaryotic or prokaryotic cells.

12. A cell culture transformed with the recombinant expression construct of Claim 11, wherein the transformed cell culture expresses the EAAT1 excitatory amino acid transporter.

5 13. A recombinant expression construct comprising a nucleic acid having a nucleotide sequence encoding a mammalian excitatory amino acid transporter, wherein the nucleotide sequence ~~consists essentially of~~ ^{comprises} the sequence of the human EAAT2 excitatory amino acid transporter (SEQ ID No.:6), and wherein the construct is capable of expressing the EAAT2 excitatory amino acid transporter in a transformed culture of eukaryotic or prokaryotic cells.

6 14. A cell culture transformed with the recombinant expression construct of Claim 13, wherein the transformed cell culture expresses the EAAT2 excitatory amino acid transporter.

15. A recombinant expression construct comprising a nucleic acid having a nucleotide sequence encoding a mammalian excitatory amino acid transporter, wherein the nucleotide sequence consists essentially of the sequence of the human EAAT3 excitatory amino acid transporter (SEQ ID No.:8), wherein the construct is capable of expressing the EAAT3 excitatory amino acid transporter in a transformed culture of eukaryotic or prokaryotic cells.

16. A cell culture transformed with the recombinant expression construct of Claim 15, wherein the transformed cell culture expresses the EAAT3 excitatory amino acid transporter.

17. A method of screening a compound as an inhibitor of excitatory amino acid transport in cells expressing a mammalian excitatory amino acid transporter, the method comprising the following steps:

- (a) transforming a culture of eukaryotic or prokaryotic cells with a recombinant expression construct capable of expressing a mammalian excitatory amino acid transporter selected from the group consisting of the human excitatory amino acid

transporters EAAT1, EAAT2 and EAAT3, wherein the cells of the transformed cell culture express the mammalian excitatory amino acid transporter; and

- (b) assaying the transformed cell culture with the compound to determine whether the compound is capable of inhibiting excitatory amino acid transport by the excitatory amino acid transporter.

18. A method of quantitatively detecting a compound as an inhibitor of excitatory amino acid transport in cells expressing a mammalian excitatory amino acid transporter, the method comprising the following steps:

- (a) transforming a culture of eukaryotic or prokaryotic cells with a recombinant expression construct capable of expressing a mammalian excitatory amino acid transporter selected from the group consisting of the human excitatory amino acid transporters EAAT1, EAAT2 and EAAT3, wherein the cells of the transformed cell culture express the mammalian excitatory amino acid transporter; and
- (b) assaying the transformed cell culture with an amount of the compound to measure the extent of inhibition of excitatory amino acid transport using a detectable excitatory amino acid or analogue thereof.

19. An antibody or fragment thereof that is immunologically reactive to a mammalian excitatory amino acid transporter selected from the group consisting of the human excitatory amino acid transporters EAAT1, EAAT2 and EAAT3.

20. The antibody according to Claim 19 that is a monoclonal antibody.

21. A cell line that produces the monoclonal antibody of Claim 20.

22. An epitope of an excitatory amino acid transporter wherein the epitope is immunologically reactive to the antibody or fragment thereof according to Claim 19.

23. A chimeric antibody that is immunologically reactive to a mammalian excitatory amino acid transporter selected from the group consisting of EAAT1, EAAT2 and EAAT3.

24. A nucleic acid comprising a nucleotide sequence encoding a mammalian neutral amino acid transporter, wherein the nucleotide sequence of the nucleic acid consists essentially of the sequence of the human neutral amino acid transporter ASCT1 (SEQ ID No.:2).

25. A homogeneous composition of a mammalian neutral amino acid transporter or derivative thereof having a molecular weight of about 55.9 kilodaltons and an amino acid

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sequence consisting essentially of the amino acid sequence of the human neutral amino acid transporter ASCT1 (SEQ ID No.:3).

26. A nucleic acid hybridization probe for the detection of mammalian neutral amino acid transporter expression comprising the nucleotide sequence of Claim 24.

27. A recombinant expression construct comprising a nucleic acid having a nucleotide sequence encoding a mammalian neutral amino acid transporter, wherein the nucleotide sequence consists essentially of the sequence of the human neutral amino acid ASCT1 (SEQ ID No.:2), wherein the construct is capable of expressing the ASCT1 neutral amino acid transporter in a transformed culture of eukaryotic or prokaryotic cells.

28. A cell culture transformed with the recombinant expression construct of Claim 27, wherein the transformed cell culture expresses the ASCT1 neutral amino acid transporter.

29. A method of screening a compound as an inhibitor of neutral amino acid transport in cells expressing a mammalian neutral amino acid transporter, the method comprising the following steps:

(a) transforming a culture of prokaryotic or eukaryotic cells with a recombinant expression construct capable of expressing a mammalian neutral amino acid transporter that is the human neutral amino acid transporter ASCT1, wherein the cells of the transformed cell culture express the mammalian neutral amino acid transporter; and

(b) assaying the transformed cell culture with the compound to determine whether the compound is capable of inhibiting neutral amino acid transport by the neutral amino acid transporter.

30. A method of quantitatively detecting a compound as an inhibitor of neutral amino acid transport in cells expressing a mammalian neutral amino acid transporter, the method comprising the following steps:

(a) transforming a culture of prokaryotic or eukaryotic cells with a recombinant expression construct capable of expressing a mammalian neutral amino acid transporter that is the human neutral amino acid transporter ASCT1, wherein the cells of the transformed cell culture express the mammalian neutral amino acid transporter; and

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- (b) assaying the transformed cell culture with an amount of the compound to measure the extent of inhibition of neutral amino acid transport using a detectable neutral amino acid or analogue thereof.
31. An antibody or fragment thereof that is immunologically reactive to a mammalian neutral amino acid transporter that is the human neutral amino acid transporter ASCT1.
32. The antibody according to Claim 31 that is a monoclonal antibody.
33. A cell line that produces the monoclonal antibody of Claim 32.
34. An epitope of a neutral amino acid transporter wherein the epitope is immunologically reactive to the antibody or fragment thereof according to Claim 31.
35. A chimeric antibody that is immunologically reactive to a mammalian neutral amino acid transporter that is the human ASCT1 neutral amino acid transporter.